

What to Study

Gene Action: From DNA to Protein Unit

Be able to define and understand the following terms:

- Genome
- Exome
- Gene
- Transcription
- Translation
- RNA polymerase
- Template strand
- Coding strand
- Transcription factors
- Promoter
- Intron
- Exon
- Genetic code
- Codon
- Reading frame
- Synonymous codons
- “Wobble” position
- Anticodon
- Peptide bond
- Polypeptide chain
- Chaperone proteins
- Proteasome

Be able to do the following:

- Explain how RNA polymerase adds RNA nucleotides to a growing RNA chain
- Explain the differences between DNA and RNA
- Identify and explain the roles of the 3 types of RNA
- Explain what happens during transcription initiation, elongation, and termination
- Complete the complementary strand of mRNA given its DNA template strand
- Explain what happens to mRNA during RNA processing
- Explain the 5 characteristics of the genetic code
- Explain what happens during translation initiation, elongation, and termination
- Determine the amino acids for which certain mRNA codons code (using the decoder)
- Write the corresponding tRNA anticodons given mRNA codons
- Determine the amino acids for which a certain **DNA** sequence codes (using the decoder)
- Explain the difference between primary, secondary, tertiary, and quaternary protein structures